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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/721,866

11/26/2003

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EXAMINER

SEFCHECK, GREGORY B

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/721,866	<b>Applicant(s)</b> STRACHAN ET AL.	
	<b>Examiner</b> GREGORY B. SEFCHECK	<b>Art Unit</b> 2619	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

- Applicant's Request for Continued Examination filed 6/11/2008 is acknowledged.
- Claims 1, 2, 4, and 5 have been amended. Claims 1-5 remain pending.

### ***Drawings***

1. The drawings filed 11/26/2003 are objected to because, according to the Specification, Figures 1-3, 5, 7, and 8 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

2. Claims 4 and 5 are objected to because of the following informalities:

Claims 4 and 5 refer to first and second data packets, respectively. However, each claim also makes reference to "the data packet" (claim 4, line 6; claim 5, line 13), making it unclear which data packet, first or second, is being referenced.

Also, on line 7 of claim 5, "a" should be deleted prior to "destination addresses".

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 4 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4 and 5 present apparatus claims. However, the bodies of the claims present method steps without defining any structure attributable to the claimed apparatuses. The Examiner recommends amending the claims to set forth the specific structure performing the claimed steps, or amending the claims to be method claims performed by an apparatus.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kloth et al. (US006842453B1), hereafter Kloth.

- Regarding claims 1-3,

Kloth discloses a method and apparatus for implementing forwarding decision shortcuts at a network (edge) switch 300 in communication over uplink 230 with a (core) router 250 of a network having multiple subnetworks 210,220 communicating through the use of layer 2 media access control and layer 3 network addressing schemes (Title; Fig. 2-4; Col. 2-3, lines 65-10; claim 1 - method of operating a network switch which is an edge switch in an Ethernet communication network having a multiplicity of sub-nets, is arranged to receive and forward data packets which include media access control address data and network address data, and is in communication with a core router via an uplink).

Kloth discloses receiving a packet from station (source) A 202 on subnetwork 210 having a destination MAC address specifying the router 250 and extracting the network address to determine if a shortcut exists (Fig. 5, 502, Col. 6, lines 21-50; claim 1 - performing, at the network switch, a network address look-up in respect of a data packet, which is received by the edge switch from a source local to the edge switch and on a first sub-net only if the packet has a media access control destination address of the core router).

Figs. 3-5 of Kloth illustrate how the packet is shortcut (directly) forwarded toward the destination at the edge switch without traversing link 230 to router 250 when the extracted flow information in layer 3 (network address) shortcut table 700 specifies destination station B 212 on subnetwork 212 (local to the edge switch, different subnetwork than station A 202; claim 1 - forwarding the data packet directly towards its destination in response to the network destination address data in the data packet,

without the data packet traversing the core router via the uplink, when the network destination address is a destination local to the edge switch, but on a second sub-net).

Packets not eligible for shortcut forwarding (including destinations not local to the switch) are default forwarded to router 250 over link 230 according to the layer 2 MAC addressing (Fig. 5, step 530; Col. 6, lines 21-28; claim 1 - forwarding the data packet from the edge switch to the core router via the uplink, whenever the network destination address is a destination that is not local to the edge switch; claim 2 - network switch forwards the data packet to the core router in response to media access control data in the data packet; claim 3 - network switch provides a default route to the core router for network destination addresses which are not local to the network switch).

Kloth does not explicitly disclose maintaining the shortcut table with only layer 3 addresses of devices that are local to the switch.

However, as Fig. 4 in Kloth illustrates, a shortcut that obviates transmission to the router is only possible if the shortcut pertains to sources and destinations local to that switch (claim 1 - said edge switch maintaining look-up tables of network addresses only for local sources and destinations on both the first and second sub-nets).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to maintain layer 3 address information in the shortcut table of Kloth for only those sources and destinations that reside in subnetworks that are local to the switch, since communications involving a source or destination that is not local to the switch cannot utilize shortcut routing without requiring transmission to the router.

- Regarding claims 4 and 5,

Kloth discloses a method and apparatus for implementing forwarding decision shortcuts at a network (edge) switch 300 in communication over uplink 230 with a (core) router 250 of a network having multiple subnetworks 210,220 communicating through the use of layer 2 media access control and layer 3 network addressing schemes (Title; Fig. 2-4; Col. 2-3, lines 65-10; claim 4 - network edge switch having ports for the reception and forwarding of Ethernet data packets which include media access control address data and network address data; claim 5 - combination of a core router and an edge switch, connected by an uplink, for the reception and forwarding of Ethernet data packets).

Kloth shows that communications within the same subnetwork are bridged by switch 300 based upon MAC addressing (Col. 3, lines 21-25; claim 4,5 - perform a media access control address look-up in respect of a first data packet received by the edge switch; claim 4,5 - bridge the data packet if a source and a destination of the data packet are on a same subnet and local to the edge switch).

Kloth also discloses communication between different subnetworks by receiving a packet from station (source) A 202 on subnetwork 210 having a destination MAC address specifying the router 250 and extracting the network address to determine if a shortcut exists (Fig. 5, 502, Col. 6, lines 21-50; claim 4,5 - perform a network destination address look-up in respect of a second data packet which is received by the edge switch from a source local to the edge switch and on a first sub-net and has a network

destination address on a second sub-net, the network destination address look-up performed only if the media access control destination address of the second data packet is to a core router connected to the edge switch by an uplink).

Figs. 3-5 of Kloth illustrate how the packet is shortcut (directly) forwarded toward the destination at the edge switch without traversing link 230 to router 250 when the extracted flow information in the layer 3 (network address) shortcut table 700 specifies destination station B 212 on subnetwork 212 (local to the edge switch, different subnetwork than station A 202; claim 4,5 - forward said second data packet directly towards its destination in response to network address data in said second data packet when the destination thereof is a local destination).

Packets not eligible for shortcut forwarding (including destinations not local to the switch) are default forwarded over link 230 to router 250 according to the layer 2 MAC addressing, as usual (Fig. 5, step 530; Col. 6, lines 21-28; claim 4,5 - forward said second data packet from the edge switch by a default route to core router, in response to media access control address data in said second data packet, if the destination thereof is not local to the edge switch).

Kloth does not explicitly disclose maintaining the shortcut table with only layer 3 addresses of devices that are local to the switch.

However, as Fig. 4 in Kloth illustrates, a shortcut that obviates transmission to the router is only possible if the shortcut pertains to sources and destinations local to that switch (claim 4,5 - said edge switch maintaining look-up tables of network



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addresses only for local sources and destinations on both the first and second sub-nets).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to maintain layer 3 address information in the shortcut table of Kloth for only those sources and destinations that reside in subnetworks that are local to the switch, since communications involving a source or destination that is not local to the switch cannot utilize shortcut routing without requiring transmission to the router.

### ***Response to Arguments***

7. Applicant's arguments with respect to claims 1-5 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the attached PTO-892 form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GREGORY B. SEFCHECK whose telephone number is (571)272-3098. The examiner can normally be reached on Monday-Friday, 8:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wing Chan can be reached on 571-272-7493. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gregory B Sefcheck/  
Examiner, Art Unit 2619  
8-7-2008